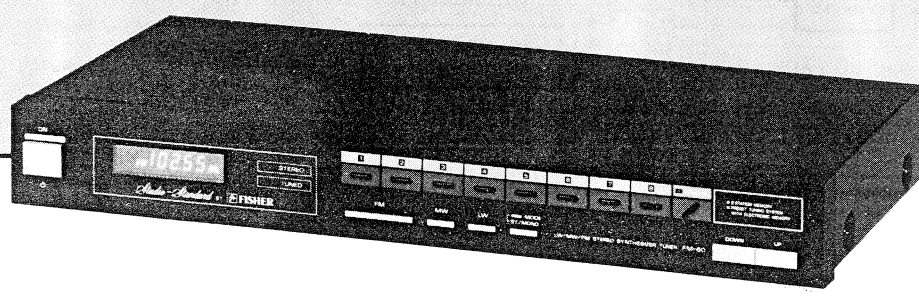
SERVICE MANUAL

FISHER

FM-60

LW/MW/FM Stereo Synthesizer Tuner

(EUROPE)



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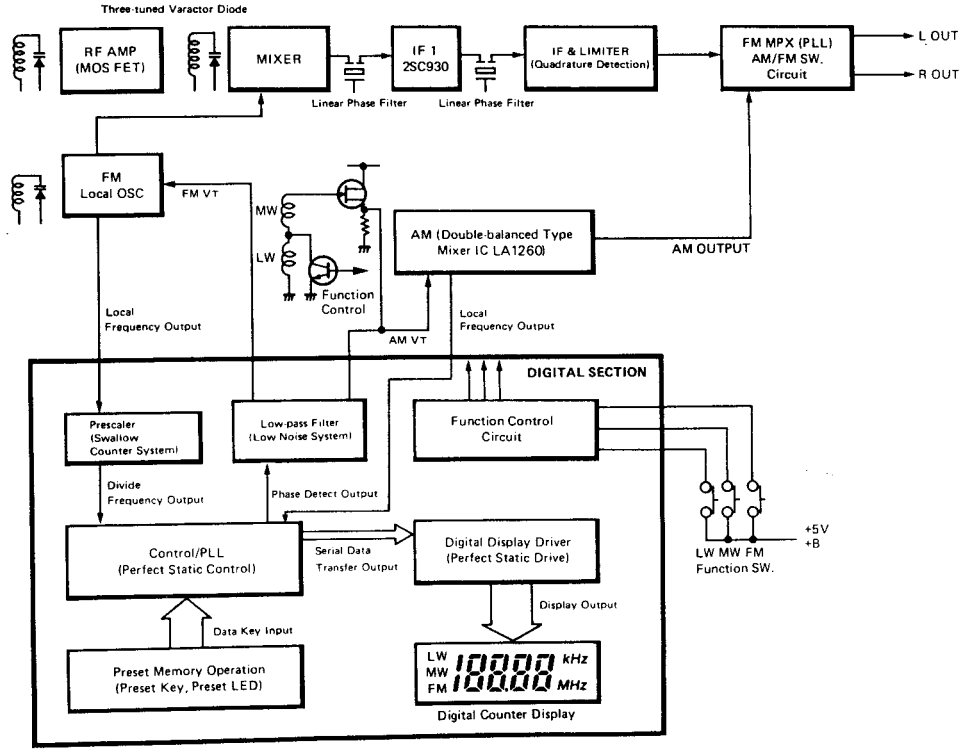
FUNCTIONAL BLOCK DIAGRAM

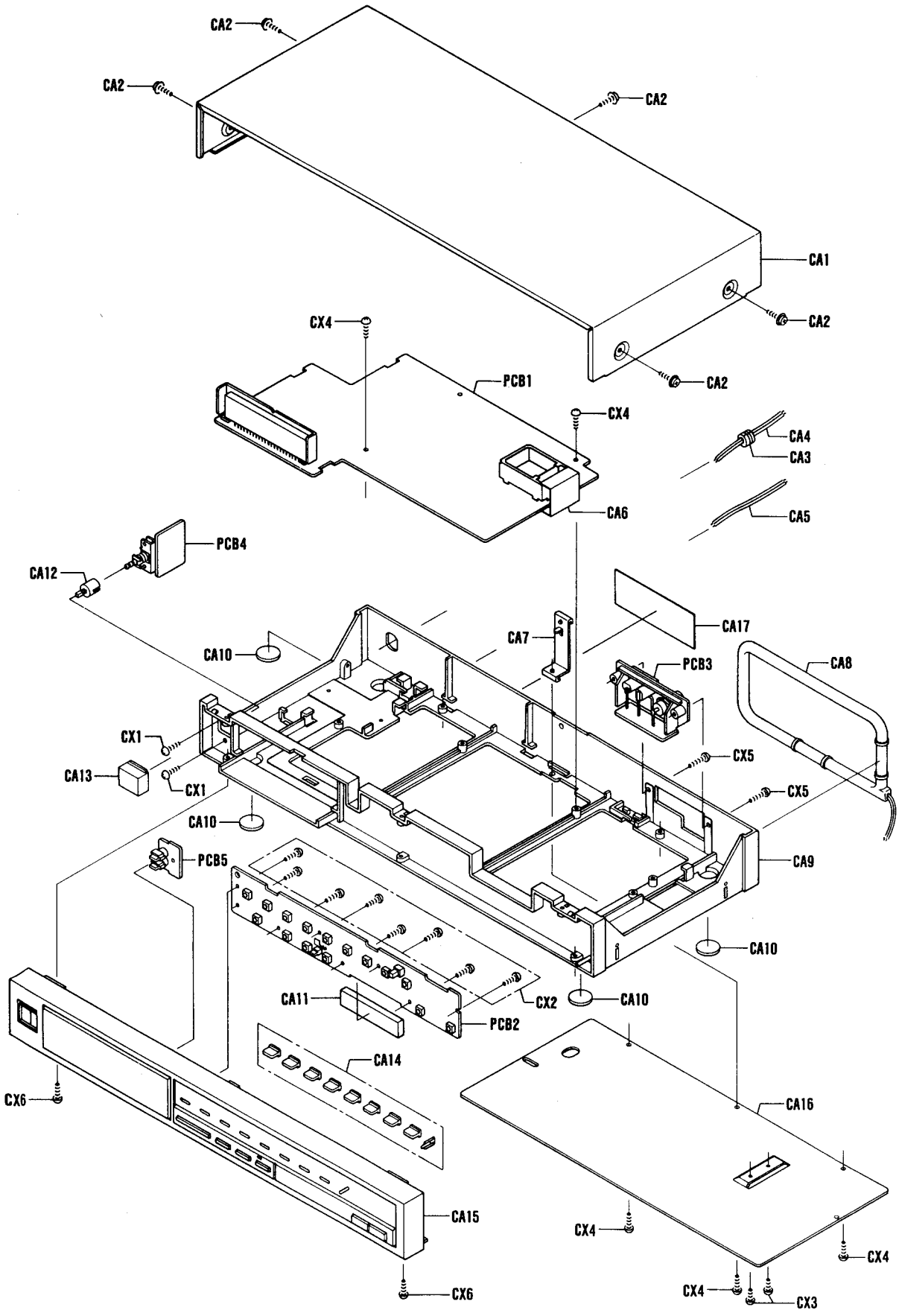


SPECIFICATIONS

LW/MW/FM STEREO TUNER	FM-60	
FM SECTION		
26 dB Quieting Sensitivity Mono	1.2μV/13.17dBf	
46 dB Quieting Sensitivity Mono	7.0μV/28.15dBf	
Signal-to-Noise Ratio Mono	65 dB	
Stereo	60 dB	
Capture Ratio	2.0 dB	
Alt. Channel Selectivity (±300 kHz)	58 dB	
Image Response Ratio	46 dB	
Spurious Response Ratio	70 dB	
IF Response Ratio	70 dB	
AM Suppression Ratio	35 dB	
Total Harmonic Distortion at 50 dB Quieting Mono	0.4 %	
Stereo	0.5 %	
Total Harmonic Distortion at 65 dBf Mono (100 Hz/1 kHz/6 kHz)	0.2/0.2/0.5 %	
Stereo (100 Hz/1 kHz/6 kHz)	0.3/0.3/0.7 %	
Stereo Separation (100 Hz/1 kHz/10 kHz)	40/40/25 dB	
Sub-Carrier Rejection (19 kHz/38 kHz)	30/50 dB	
Audio Frequency Response (20 Hz – 15 kHz)	±0.1 / –2.5 dB	
AM SECTION	**MW**	**LW**
Usable Sensitivity	350 μV/m	1000 μV/m
Selectivity (±10 kHz)	45 dB	50 dB
Signal-to-Noise Ratio	55 dB	50 dB
Image Response Ratio	40 dB	40 dB
IF Response Ratio	60 dB	60 dB
GENERAL		
Power Requirements (50 Hz)	19 V AC	
Power Consumption	9 Watts	
Dimensions (W x D x H)	400 x 208 x 55 mm	
Weight (approx.)	1.3 kg	

Because its products are subject to continuous improvement, Fisher Corporation reserves the right to modify product designs and specifications without notice and without incurring any obligation.

CABINET & CHASSIS EXPLODED VIEW



PARTS LIST

Ref. No.	Part No.	Description	Q'ty
	PACKING PARTS LIST		
	3-9415-10300	Bag Polyethylene	1
	131-6-2119-02130	Bag Polyethylene-Exp.	1
	131-6-3009-35490	Pad	1
	131-6-3069-16840	Patching Sheet	1
	131-6-4559-11200	Serial No. Sheet	2
	131-6-9459-00300	Rubber Band	1
	141-6-1139-97013	Outer Cor Carton	1
	141-6-1449-97400	Case Styrofoam	2
	141-6-2519-10019	Poly Cover 100 x 190	1
	ACCESSORIES PARTS LIST		
	131-0-4012-00180	FM Antenna Assy	1
	131-6-2719-10801	Bag Fan	1
	131-6-4519-15700	Guarantee Certificate	1
	131-6-4559-10900	Manufacturing No.	1
	141-2-1729-00500	Holder Antenna	1
	142-6-4119-32506	Explanatory Booklet	1
	CABINET & CHASSIS PARTS LIST		
CA1	141-2-1129-07001	Cover Top	1
CA2	141-2-4219-33101	Screw, Bind Hd. Tapping-B, +M3.0x8 Sems	5
CA3	131-2-6111-14200	Bushing (Line Cord)	1
CA4	4-2369-74581	Plug Cord RCA	1
CA5	⚠ 4-2369-74062	Plug Cord (Power Supply)	1
CA6	141-2-3229-48100	Plate Shield	1
CA7	131-2-3229-48000	Plate Earth	1
CA8	4-2579-71601	Loop Antenna	1
CA9	141-2-3119-22200	Chassis Cabinet	1
CA10	131-2-1801-16200	Leg	4
CA11	131-2-5205-32400	Cushion	1
CA12	131-2-4219-17100	Shaft (Power Knob)	1
CA13	131-2-1601-86200	Knob (Power Switch)	1
CA14	141-2-1659-33300	Button Switch (Station Memory)	9
CA15	141-0-1129-05712	Cabinet Front Assy	1
	141-2-1129-06711	Cabinet Front	1
	131-2-1601-87900	Knob (Up/Down Knob)	1
	131-2-5205-32400	Cushion	1
	131-2-6308-22200	Filter	1
	141-2-1319-36101	Window Dial	1
	141-2-1449-60604	Plate Decorate	1
	141-2-1539-16801	Decorate (Power)	1
	141-2-1659-33400	Button Switch (Function)	3
	141-2-1659-33500	Button Switch (Function FM)	1
CA16	141-2-1259-07100	Cover Bottom	1
CA17	141-2-1419-16731	Name Plate	1
	P.C.B. ASSY PARTS LIST		
PCB1	141-0-1939-04690	Tuner P.C.B. Assy	1
PCB2	141-0-1939-04700	Keyboard Switch P.C.B. Assy	1
PCB3	141-0-1939-04710	Antenna Terminal P.C.B. Assy	1
PCB4	141-0-1939-04720	Power Switch P.C.B. Assy	1
PCB5	141-0-1939-04730	Tuned/Stereo Ind. P.C.B. Assy	1
	SCREW PARTS LIST		
CX1	101-3-1303-00811	Screw, Pan Hd., +M3.0x8	2
CX2	143-3-1902-60811	Screw, Brazier Hd. Tapping-B, +M2.6x8	8
CX3	143-3-1903-00611	Screw, Brazier Hd. Tapping-B, +M3.0x6	2
CX4	143-3-1903-00811	Screw, Brazier Hd. Tapping-B, +M3.0x8	5
CX5	143-3-1903-01018	Screw, Brazier Hd. Tapping-B, +M3.0x10	2
CX6	143-3-1902-60818	Screw, Brazier Hd. Tapping-B, +M2.6x8	2

NOTES:

1. Parts order must contain Model Number, Part Number and Description.
2. Ordering quantity of screws and resistors must be multiple of 10 pcs.

PRODUCT SAFETY NOTICE

Each precaution in this manual should be followed during servicing. Components identified with the IEC symbol ⚠ in the parts list and the schematic diagram designate components in which safety can be of special significance. When replacing a component identified with ⚠, use only the replacement parts designated, or parts with the same ratings of resistance, wattage or voltage that are designated in the parts list in this manual.
Leakage-current or resistance measurements must be made to determine that exposed parts are acceptably insulated from the supply circuit before returning the product to the customer.

RECOMMENDED TEST EQUIPMENTS

The following test equipments are recommended to completely test and align the Tuner:

- Line Voltage Isolation Transformer
- Accurately Calibrated AC Voltmeter
- DC Voltmeter (Hight Impedance 1MΩ)
- Standard Signal Generator for AM
- Standard Signal Generator for FM
- IF Generator Scope
- Stereo Signal Generator
- Multiplex Generator
- Loop Antenna for AM
- Dummy Antenna (300 ohm, Balanced Type) for FM
- Frequency Counter
- Distortion Meter
- Oscilloscope

FM TUNER ALIGNMENT

FM ALIGNMENT – FUNCTION switch to FM position.
Note: It is almost unnecessary to adjust coil in Front End as perfectly adjusted.

ITEM	GENERATOR	DIAL SETTING	INDICATOR	PROCEDURE
Note: The FM IF circuit utilizes a non-turnable ceramic filter which establishes the IF bandpass. To insure symmetrical turning and selectivity, the IF must be aligned precisely to the center of the filter bandpass, rather than to 10.7MHz as in conventional LC circuits.				
1. S-CURVE ALIGNMENT	Connect 10.7MHz Radio IF Genescope output level 70dB to terminal TP01 and ground terminal. Use 5pF capacitor in series with generator output.	Position of non-interference. Minimum Frequency.	Connect Radio IF Genescope input to TP02 and ground terminal.	Adjust FM DET 1st Coil (T02), so that S-wave form becomes symmetrical.
2. FINAL DETECTOR ADJUST-MENT (MINIMUM T.H.D.)	Connect FM RF Signal Generator to through FM Dummy Antenna to FM Antenna terminals. Set Generator to 98MHz ±2kHz. Modulate with 1kHzto provide ±40kHz deviation. Setting Generator with attenuator output level for 60dBμ.	Front Panel DIGITAL Counter Display Set to 98MHz.	Connect Harmonic Distortion Analyzer to TUNER OUT.	Adjust FM DET 2nd Coil (T03) for minimum gain and best linearlity. **Note:** If the numerical value of Harmonic Distortion can not be apporoved as an appropriate value to the specifications, adjust the FM IFT located inside the Front End to minimize the value as small as possible within the range of 360°(degrees).
Note: Repeat Step 1 (FM DET Coil T02) and 2 (FM DET Coil T03) until optimum alignment is reached.				
3. FM STEREO SIGNAL SEPARATION CONTROL	Connect FM Stereo SG to FM Antenna terminals. 19kHz signal ON. Main channel, sub channel signal ON. Apply 1000Hz signal from LEFT channel.		Scope and AC-VTVM to RIGHT TUNER OUT.	Adjust VR01 for minimum output.
	Same as above for RIGHT channel.		Scope and AC-VTVM to LEFT TUNER OUT.	

Use a screwdriver with plastic grip for all adjustments.

CAUTION: This precision high-fidelity instrument should be serviced only by qualified personnel, trained in the repair of transistor equipment and printed circuitry.

AM TUNER ALIGNMENT

AM ALIGNMENT – FUNCTION switch to LW or MW position.
Maintain generator output as low as possible for suitable indication.

ITEM	GENERATOR	DIAL SETTING	INDICATOR	PROCEDURE
1. AM IF ALIGNMENT	Connect 450kHz Radio IF Genescope output level 70dB to TP03 and ground terminal.	Position of non-interference. Minimum Frequency.	Connect Radio IF Genescope input to TP04 and ground terminal.	Adjust AM IFT (T09) for maximum gain and best symmetry.
2. MW (RF) FREQUENCY COVER ALIGNMENT (1611kHz)	Do not connect generator.	Front Panel DIGITAL Counter Display Set to 1611kHz.	Connect DC Voltmeter to TP05 and ground terminal.	Voltmeter reading Specified Tuning Voltage Value (See Table 1).
3. (522kHz)	Same as above.	DIGITAL Counter Display Set to 522kHz.	Same as above.	Same as above.
4. MW (RF) TRACKING ALIGNMENT (603kHz)	Connect Standard Loop Antenna to output terminal of AM RF Signal Generator. Place Loop Antenna 60cm away from Loop Antenna (FM-60). Generator Setting to 603kHz or 1404kHz. Modulate with 400Hz (30% modulation).	DIGITAL Counter Display Set to 603kHz.	Connect AC VTVM and Oscilloscope to TUNER OUT.	Adjust MW Antenna Coil (T05) for maximum gain output.
5. (1404kHz)		DIGITAL Counter Display Set to 1404kHz.	Same as above.	Adjust MW Antenna Trimmer (TC01) for maximum gain output.
Note: Repeat the adjustments in Items 4 and 5. Then, confirm that there is no traking error.				
6. LW (RF) FREQUENCY COVER ALIGNMENT (360kHz)	Do not connect generator.	Front Panel DIGITAL Counter Display Set to 360kHz.	Connect DC Voltmeter to TP05 and ground terminal.	Voltmeter reading Specified Tuning Voltage Value (See Table 1).
7. (153kHz)	Same as above.	DIGITAL Counter Display Set to 153kHz.	Same as above.	Same as above.
8. LW (RF) TRACKING ALIGNMENT (160kHz)	Connect Standard Loop Antenna to output terminal of AM RF Signal Generator. Place Loop Antenna 60cm away from Loop Antenna (FM-60). Generator Setting to 160kHz or 350kHz. Modulate with 400Hz (30% modulation).	DIGITAL Counter Display Set to 160kHz.	Connect AC VTVM and Oscilloscope to TUNER OUT.	Adjust LW Antenna Coil (T06) for maximum gainou tput.
9. (350kHz)		DIGITAL Counter Display Set to 350kHz.	Same as above.	Adjust LW Antenna Trimmer (TC02) for maximum gain output.
Note: Repeat the adjustments in Items 8 and 9. Then, confirm that there is no traking error.				

Use a screwdriver with plastic grip for all adjustments.

MW/LW Frequency Cover Range
Tuning Voltage Value at TP05

(Table 1)

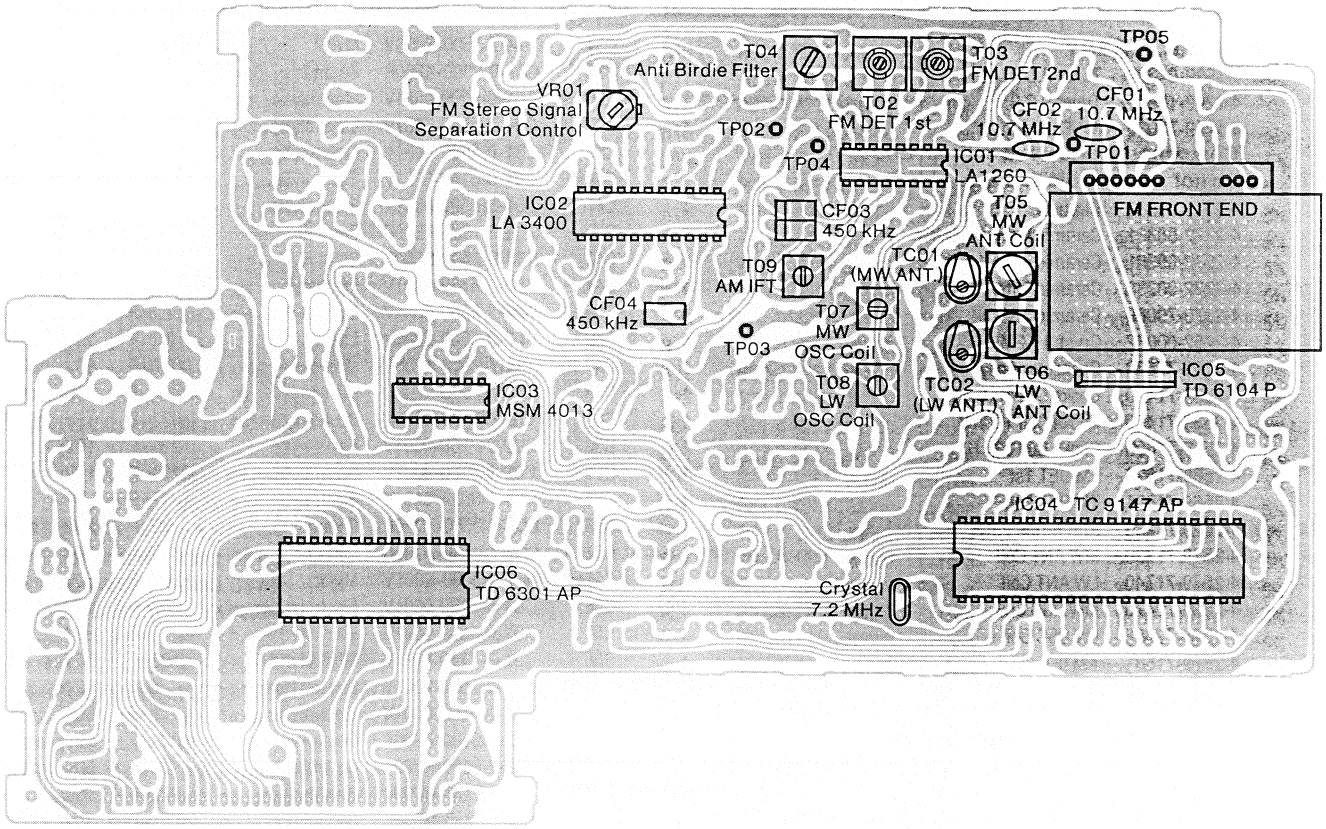
	153 kHz	360 kHz	522 kHz	1611kHz
Minimum	0.8 V	6.0 V	0.8 V	7.0 V
Typical	1.0 V	7.3 V	1.0 V	8.2 V
Maximum	1.3 V	9.0 V	1.3 V	9.0 V

TROUBLE SHOOTING GUIDE

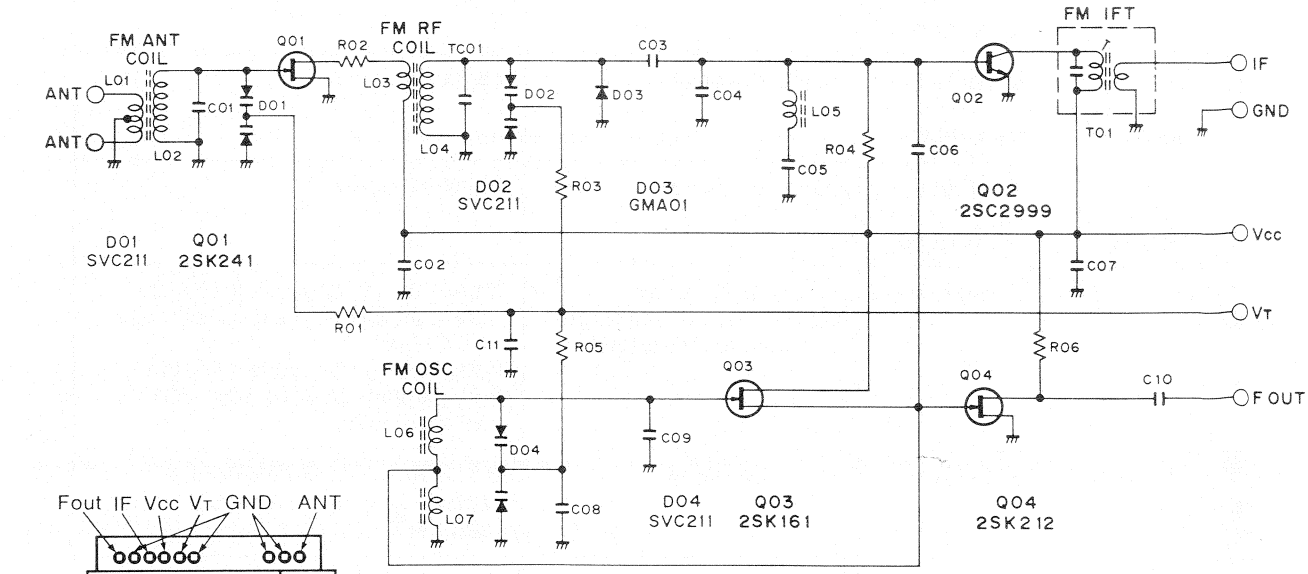
Tuning Frequency		Tuning Voltage	Possible Cause	Corrective Action
MW	522kHz	Low Voltage	MW OSC Coil (T07) Inductance is too little.	Adjust MW OSC Coil (T07) at Tuning Frequency 522kHz.
	1611kHz	Normal		
	522kHz	High Voltage	MW OSC Coil (T07) Inductance is too much.	Same as above.
	1611kHz	Normal		
LW	153kHz	Low Voltage	LW OSC Coil (T08) Inductance is too little.	Adjust LW OSC Coil (T08) at Tuning Frequency 153kHz.
	360kHz	Normal		
	153kHz	High Voltage	LW OSC Coil (T08) Inductance is too much.	Same as above.
	360kHz	Normal		
MW	522kHz	Normal	C107 Capacitance is too little.	Increase Capacity of C107.
	1611kHz	Low Voltage		
	522kHz	Normal	C107 Capacitance is too much.	Decrease Capacity of C107.
	1611kHz	High Voltage		
LW	153kHz	Normal	C20 Capacitance is too little.	Increase Capacity of C20.
	360kHz	Low Voltage		
	153kHz	Normal	C20 Capacitance is too much.	Decrease Capacity of C20.
	360kHz	High Voltage		
MW	522kHz	Low Voltage	D01,02 (SVC 321) Rank is wrong or bad parts.	Replace D01,02 (SVC 321) and/or check PLL Circuit of IC04, Q06 and Q15,16.
	1611kHz	Low Voltage		
	522kHz	High Voltage	Same as above.	Same as above.
	1611kHz	High Voltage		
LW	153kHz	Low Voltage	Same as above.	Same as above.
	360kHz	Low Voltage		
	153kHz	High Voltage	Same as above.	Same as above.
	360kHz	High Voltage		
TC01 Trimmer Condenser cannot be adjusted.			The fin of Trimmer Condenser is completely exposed to the outside.	If the Tuning Voltage is less than 8.5V, add 2pF with a parallel cross C107 18pF. If the Tuning Voltage is more than 8.5V, replace D01, 02 (SVC321) and readjust it.
TC02 Trimmer Condenser cannot be adjusted.			Same as above.	If the Tuning Voltage is normal, replace C15 18pF with 15pF and readjust it.
TC02 Trimmer Condenser Cannot be adjusted.			The fin of Trimmer Condenser is completely concealed by the body of Trimmer Condenser.	If the Tuning Voltage is normal, replace C15 18pF with 22pF and readjust it.

TUNER P.C.BOARD LAYOUT ALIGNMENT POINTS

(TOP VIEW)



FRONT END SCHEMATIC DIAGRAM



P.C.BOARD PARTS LIST

Ref. No.	Part No.	Description			Q'ty
	TUNER P.C.B. ASSY				
B1	141-0-1939-04690	Tuner P.C.B. Assy			1
	4-2262-18940	Tuner P.C.B.			1
	4-1259-72035	FM Frontend			1
	(Component parts used in Front End are not serviceable and available.)				
D01	4-2142-00080	Digitron			1
F01	4-2272-00301	Ceramic Filter 10.7MHz			1
F02	4-2272-00301	Ceramic Filter 10.7MHz			1
F03	4-2272-00230	Ceramic Filter			1
F04	4-2279-70080	Ceramic OSC			1
F05	4-2252-00082	Crystal 7.2MHz			1
J03	4-2359-77520	Connector Assy			1
L01	4-2539-71420	Choke Coil 100μH			1
L02	4-2539-71420	Choke Coil 100μH			1
L03	4-2539-71600	Choke Coil 33μH			1
T02	4-2569-71690	FM DET 1st			1
T03	4-2569-71691	FM DET 2nd			1
T04	4-2529-70230	Anti Birdie Filter			1
T05	4-2579-71730	MW ANT Coil			1
T06	4-2579-71740	LW ANT Coil			1
T07	4-2589-72470	MW OSC Coil			1
T08	4-2589-72480	LW OSC Coil			1
T09	4-2569-71681	AM IFT			1
TC01	4-2242-00120	Film Trimmer 8P			1
TC02	4-2242-00180	Film Trimmer 16P			1
VR01	4-2222-00960	Potentiometer 100kΩ-B			1
	111-2-6220-11100	Wire Wrap Terminal			11
	131-2-5205-22503	Cushion			1
	131-2-6108-11201	Cover Sever			2
	131-2-6201-21500	Plate Heat Sink			1
	141-2-3889-03400	Braket Digitron			1
	CAPACITORS				
C02	CC4-7-0500-KD00C	Ceramic	47pF	50V ±10%	1
C03	CI2-2-3160-NG00R	Boundary	0.022μF	16V ±30%	1
C05	CC2-2-3500-ZG00C	Ceramic	0.022μF	50V +80,-20%	1
C06	CC4-7-3500-ZG00C	Ceramic	0.047μF	50V +80,-20%	1
C07	CC4-7-3500-ZG00C	Ceramic	0.047μF	50V +80,-20%	1
C08	CC4-7-3500-ZG00C	Ceramic	0.047μF	50V +80,-20%	1
C09	CD4-7-663A-0001V	Electrolytic	47μF	6.3V	1
C10	CI2-2-3160-NG00R	Boundary	0.022μF	16V ±30%	1
C11	CD1-0-6160-0001V	Electrolytic	10μF	16V	1
C12	CC2-2-1500-KD00R	Ceramic	220pF	50V ±10%	1
C13	CC1-0-3500-ZG00C	Ceramic	0.01μF	50V +80,-20%	1
C14	CD2-2-5500-0001V	Electrolytic	2.2μF	50V	1
C15	CC1-5-0500-KD00C	Ceramic	15pF	50V ±10%	1
C16	CD2-2-5500-0001V	Electrolytic	2.2μF	50V	1
C17	CC4-7-3500-ZG00C	Ceramic	0.047μF	50V +80,-20%	1
C18	CC4-7-3500-ZG00C	Ceramic	0.047μF	50V +80,-20%	1
C19	CI2-2-3160-NG00R	Boundary	0.022μF	16V ±30%	1
C20	CC6-8-0500-JD00R	Ceramic	68pF	50V ±5%	1
C21	CD1-0-5500-0001V	Electrolytic	1μF	50V	1
C22	CI2-2-3160-NG00R	Boundary	0.022μF	16V ±30%	1
C23	CS4-3-1500-J000V	Polystyroul	430pF	50V ±5%	1
C24	CC4-7-3500-ZG00C	Ceramic	0.047μF	50V +80,-20%	1
C25	CC4-7-3500-ZG00C	Ceramic	0.047μF	50V +80,-20%	1
C26	CS3-3-1500-J000V	Polystyroul	330pF	50V ±5%	1
C27	CC4-7-3500-ZG00C	Ceramic	0.047μF	50V +80,-20%	1
C28	CD1-0-6160-0001V	Electrolytic	10μF	16V	1
C29	CC4-7-0500-KD00C	Ceramic	47pF	50V ±10%	1
C30	CD1-0-6160-0001V	Electrolytic	10μF	16V	1
C32	CI2-7-3250-KF00C	Boundary	0.027μF	25V ±10%	1
C33	CC1-0-2500-KE00C	Ceramic	0.001μF	50V ±10%	1

Ref. No.	Part No.	Description			Q'ty
C34	CM4-7-3500-K00SV	Mylar	0.047μF	50V ±10%	1
C35	CC1-0-2500-KE00R	Ceramic	0.001μF	50V ±10%	1
C36	CD1-0-5500-0001V	Electrolytic	1μF	50V	1
C37	CD4-7-4500-0001V	Electrolytic	0.47μF	50V	1
C38	CD1-0-5500-0001V	Electrolytic	1μF	50V	1
C40	CD1-0-6160-0001V	Electrolytic	10μF	16V	1
C41	CD1-0-5500-0001V	Electrolytic	1μF	50V	1
C42	CC3-9-1500-KE00C	Ceramic	390pF	50V ±10%	1
C43	CC3-9-1500-KE00C	Ceramic	390pF	50V ±10%	1
C44	CD2-2-6160-0001V	Electrolytic	22μF	16V	1
C45	CD2-2-5500-0001V	Electrolytic	2.2μF	50V	1
C46	CD2-2-5500-0001V	Electrolytic	2.2μF	50V	1
C47	CI4-7-2500-KE00R	Boundary	0.0047μF	50V ±10%	1
C48	CI4-7-2500-KE00R	Boundary	0.0047μF	50V ±10%	1
C49	CI2-2-3160-NG00R	Boundary	0.022μF	16V ±30%	1
C50	CD2-2-7100-0001V	Electrolytic	220μF	10V	1
C51	CD2-2-8100-0001V	Electrolytic	2200μF	10V	1
C52	CD4-7-663A-0001V	Electrolytic	47μF	6.3V	1
C53	CC2-7-0500-JCH0C	Ceramic	27pF	50V ±5%	1
C54	CC2-7-0500-JCH0C	Ceramic	27pF	50V ±5%	1
C55	CM1-0-3500-K00SV	Mylar	0.01μF	50V ±10%	1
C56	CD1-0-7160-0001V	Electrolytic	100μF	16V	1
C57	CD1-0-5500-0001V	Electrolytic	1μF	50V	1
C58	CD1-0-7160-0001V	Electrolytic	100μF	16V	1
C59	CD1-0-5500-0001V	Electrolytic	1μF	50V	1
C60	CD1-0-5500-0001V	Electrolytic	1μF	50V	1
C61	CC2-2-3500-ZG00C	Ceramic	0.022μF	50V +80,20%	1
C63	CC2-7-0500-KD00C	Ceramic	27pF	50V ±10%	1
C64	CI2-2-3160-NG00R	Boundary	0.022μF	16V ±30%	1
C66	CI1-0-3250-MF00R	Boundary	0.01μF	25V ±20%	1
C67	CI1-0-3250-MF00R	Boundary	0.01μF	25V ±20%	1
C68	CD4-7-6160-0001V	Electrolytic	47μF	16V	1
C69	CD4-7-6100-0001V	Electrolytic	47μF	10V	1
C70	CD4-7-6100-0001V	Electrolytic	47μF	10V	1
C71	CD1-0-7160-0001V	Electrolytic	100μF	16V	1
C72	CD1-0-8250-0001V	Electrolytic	1000μF	25V	1
C73	CC1-0-3500-ZG00C	Ceramic	0.01μF	50V +80,20%	1
C74	CC1-0-3500-ZG00C	Ceramic	0.01μF	50V +80,20%	1
C75	CC1-0-3500-ZG00C	Ceramic	0.01μF	50V +80,20%	1
C76	CC1-0-3500-ZG00C	Ceramic	0.01μF	50V +80,20%	1
C93	CI2-2-3160-NG00R	Boundary	0.022μF	16V ±30%	1
C95	CD4-7-6160-0001V	Electrolytic	47μF	16V	1
C96	CI1-0-3250-MF00R	Boundary	0.01μF	25V ±20%	1
C97	CI1-0-3250-MF00R	Boundary	0.01μF	25V ±20%	1
C98	CI1-0-3250-MF00R	Boundary	0.01μF	25V ±20%	1
C100	CC4-7-3500-ZG00C	Ceramic	0.047μF	50V +80,20%	1
C103	CI2-2-3160-NG00R	Boundary	0.022μF	16V ±30%	1
C104	CC4-7-3500-ZG00C	Ceramic	0.047μF	50V +80,20%	1
C107	CC1-8-0500-KD00C	Ceramic	18pF	50V ±10%	1
C108	CD4-7-4500-0001V	Electrolytic	0.47μF	50V	1
C109	CD1-0-6160-0001V	Electrolytic	10μF	16V	1
C110	CD1-0-6160-0001V	Electrolytic	10μF	16V	1

SEMICONDUCTORS

If necessary, replace both Diode D01 (SVC 321) and Diode D02 (SVC 321) together with new ones which have the equivalent characteristics.

D01	202-5-1260-32123	Diode, SVC 321 C	1
D02	202-5-1260-32123	Diode, SVC 321 C	1
D05	202-5-2810-44210	Diode, DS 442	1
D06	202-5-2810-44210	Diode, DS 442	1
D08	202-5-2810-44210	Diode, DS 442	1
D09	202-5-2810-44210	Diode, DS 442	1

P.C.BOARD PARTS LIST (Continued)

Ref. No.	Part No.	Description	Q'ty
D10	202-5-2810-44210	Diode, DS 442	1
D11	202-5-2810-44210	Diode, DS 442	1
D12	202-5-2810-44210	Diode, DS 442	1
D13	202-5-2810-44210	Diode, DS 442	1
D14	202-5-2810-44210	Diode, DS 442	1
D15	202-5-2810-44210	Diode, DS 442	1
D16	202-5-2810-44210	Diode, DS 442	1
D17	202-5-2810-44210	Diode, DS 442	1
D18	202-5-2810-44210	Diode, DS 442	1
D19	202-5-2810-44210	Diode, DS 442	1
D20	202-5-2810-44210	Diode, DS 442	1
D25	202-5-2810-44210	Diode, DS 442	1
D27	202-5-0220-01010	Diode, DSF 10 C	1
D28	202-5-0220-01010	Diode, DSF 10 C	1
D29	202-5-0220-01010	Diode, DSF 10 C	1
D30	202-5-0220-01010	Diode, DSF 10 C	1
D31	202-5-3210-13011	Zener Diode, GZA 13 X	1
D32	202-5-0220-01010	Diode, DSF 10 C	1
D33	202-5-2810-44210	Diode, DS 442	1
D35	202-5-2810-44210	Diode, DS 442	1
D39	202-5-2810-44210	Diode, DS 442	1
IC01	207-5-3281-26110	IC, LA 1261	1
IC02	207-5-0743-40010	IC, LA 3400	1
IC03	4-2069-74380	IC, BU 4013 B	1
IC04	ITT---TC91-47P- -	IC, TC 9147 AP	1
IC05	ITT---TD61-04P- -	IC, TD 6104 P	1
IC06	ITT---TD63-01AP-	IC, TD 6301 AP	1
Q01	203-5-4921-01280	Transistor, 2SD 1012	1
Q02	4-2039-71410	FET, 2SK 246	1
Q03	203-5-5000-53680	Transistor, 2SC 536	1
Q04	203-5-5000-53680	Transistor, 2SC 536	1
Q05	203-5-5000-53680	Transistor, 2SC 536	1
Q06	203-5-5000-53680	Transistor, 2SC 536	1
Q07	203-5-4921-01280	Transistor, 2SD 1012	1
Q08	203-5-4921-01280	Transistor, 2SD 1012	1
Q09	203-5-5000-53680	Transistor, 2SC 536	1
Q10	203-5-5000-53680	Transistor, 2SC 536	1
Q11	203-5-5000-53680	Transistor, 2SC 536	1
Q12	203-5-7230-60850	Transistor, 2SA 608	1
Q13	203-5-5000-53680	Transistor, 2SC 536	1
Q14	203-5-5000-53680	Transistor, 2SC 536	1
Q15	4-2039-71412	FET, 2SK 246	1
Q16	TTT---2SC1-815-B	Transistor, 2SC 1815	1
Q17	203-5-5000-53680	Transistor, 2SC 536	1
Q18	203-5-5000-53680	Transistor, 2SC 536	1
Q19	203-5-5000-53680	Transistor, 2SC 536	1
Q20	203-5-5000-53680	Transistor, 2SC 536	1
Q21	203-5-5000-53680	Transistor, 2SC 536	1
Q22	203-5-8570-33060	Transistor, 2SD 330	1
Q23	4-2039-71411	FET, 2SK 246	1
Q24	203-5-7230-60850	Transistor, 2SA 608	1
Q25	203-5-5000-53680	Transistor, 2SC 536	1
Q26	203-5-5000-53680	Transistor, 2SC 536	1
Q27	203-5-5500-93060	Transistor, 2SC 930	1

RESISTORS

R01	RD5-6-2251-JM000	Carbon	5.6kΩ	1/4W	±5%	1
R02	RD2-2-0251-JS000	Carbon	22Ω	1/4W	±5%	1
R03	RD2-2-2251-JM000	Carbon	2.2kΩ	1/4W	±5%	1
R04	RD2-7-1251-JM000	Carbon	270Ω	1/4W	±5%	1
R05	RD3-9-1161-JH000	Carbon	390Ω	1/6W	±5%	1
R06	RD1-0-2161-JH000	Carbon	1kΩ	1/6W	±5%	1
R08	RD2-4-2161-JH000	Carbon	2.4kΩ	1/6W	±5%	1
R09	RD2-2-0251-JS000	Carbon	22Ω	1/4W	±5%	1

Ref. No.	Part No.	Description				Q'ty
R10	RD8-2-2251-JM000	Carbon	8.2kΩ	1/4W	±5%	1
R11	RD1-0-5161-JH000	Carbon	1MΩ	1/6W	±5%	1
R12	RD2-2-3251-JM000	Carbon	22kΩ	1/4W	±5%	1
R13	RD2-2-2251-JM000	Carbon	2.2kΩ	1/4W	±5%	1
R14	RD1-0-5161-JH000	Carbon	1MΩ	1/6W	±5%	1
R15	RD1-0-3251-JM000	Carbon	10kΩ	1/4W	±5%	1
R16	RD1-0-2251-JM000	Carbon	1kΩ	1/4W	±5%	1
R17	RD3-9-1161-JH000	Carbon	390Ω	1/6W	±5%	1
R18	RD2-4-2161-JH000	Carbon	2.4kΩ	1/6W	±5%	1
R19	RD1-0-1161-JH000	Carbon	100Ω	1/6W	±5%	1
R20	RD1-0-4251-JM000	Carbon	100kΩ	1/4W	±5%	1
R21	RD1-0-4251-JM000	Carbon	100kΩ	1/4W	±5%	1
R22	RD2-2-3251-JM000	Carbon	22kΩ	1/4W	±5%	1
R23	RD1-0-3161-JH000	Carbon	10kΩ	1/6W	±5%	1
R24	RD1-0-4251-JM000	Carbon	100kΩ	1/4W	±5%	1
R28	RD2-2-3251-JM000	Carbon	22kΩ	1/4W	±5%	1
R29	RD2-2-3251-JM000	Carbon	22kΩ	1/4W	±5%	1
R30	RD1-0-4251-JM000	Carbon	100kΩ	1/4W	±5%	1
R31	RD1-0-2161-JH000	Carbon	1kΩ	1/6W	±5%	1
R32	RD1-0-1251-JM000	Carbon	100Ω	1/4W	±5%	1
R33	RD3-3-2251-JM000	Carbon	3.3kΩ	1/4W	±5%	1
R34	RD1-0-2251-JM000	Carbon	1kΩ	1/4W	±5%	1
R35	RD1-0-1251-JM000	Carbon	100Ω	1/4W	±5%	1
R37	RD2-2-3161-JH000	Carbon	22kΩ	1/6W	±5%	1
R38	RD3-3-2161-JH000	Carbon	3.3kΩ	1/6W	±5%	1
R39	RD2-2-0251-JS000	Carbon	22Ω	1/4W	±5%	1
R40	RD1-0-4251-JM000	Carbon	100kΩ	1/4W	±5%	1
R41	RD6-8-1161-JH000	Carbon	680Ω	1/6W	±5%	1
R42	RD1-3-4161-JH000	Carbon	130kΩ	1/6W	±5%	1
R43	RD1-3-4161-JH000	Carbon	130kΩ	1/6W	±5%	1
R46	RD1-0-2161-JH000	Carbon	1kΩ	1/6W	±5%	1
R47	RD1-0-2161-JH000	Carbon	1kΩ	1/6W	±5%	1
R49	RD1-0-4251-JM000	Carbon	100kΩ	1/4W	±5%	1
R50	RD2-2-3251-JM000	Carbon	22kΩ	1/4W	±5%	1
R51	RD2-2-3251-JM000	Carbon	22kΩ	1/4W	±5%	1
R52	RD2-2-2251-JM000	Carbon	2.2kΩ	1/4W	±5%	1
R53	RD2-2-2251-JM000	Carbon	2.2kΩ	1/4W	±5%	1
R54	RD1-0-4251-JM000	Carbon	100kΩ	1/4W	±5%	1
R55	RD1-0-4251-JM000	Carbon	100kΩ	1/4W	±5%	1
R57	RD2-2-2251-JM000	Carbon	2.2kΩ	1/4W	±5%	1
R58	RD1-0-4251-JM000	Carbon	100kΩ	1/4W	±5%	1
R59	RD1-0-4251-JM000	Carbon	100kΩ	1/4W	±5%	1
R60	RD1-0-4251-JM000	Carbon	100kΩ	1/4W	±5%	1
R61	RD1-0-4251-JM000	Carbon	100kΩ	1/4W	±5%	1
R62	RD1-0-4251-JM000	Carbon	100kΩ	1/4W	±5%	1
R63	RD1-0-3251-JM000	Carbon	10kΩ	1/4W	±5%	1
R64	RD3-3-4251-JM000	Carbon	330kΩ	1/4W	±5%	1
R65	RD1-0-3161-JH000	Carbon	10kΩ	1/6W	±5%	1
R66	RD1-0-3251-JM000	Carbon	10kΩ	1/4W	±5%	1
R67	RD1-0-4251-JM000	Carbon	100kΩ	1/4W	±5%	1
R68	RD1-0-4251-JM000	Carbon	100kΩ	1/4W	±5%	1
R69	RD4-7-3251-JM000	Carbon	47kΩ	1/4W	±5%	1
R70	RD2-2-3251-JM000	Carbon	22kΩ	1/4W	±5%	1
R71	RD1-0-3251-JM000	Carbon	10kΩ	1/4W	±5%	1
R72	RD2-2-1251-JM000	Carbon	220Ω	1/4W	±5%	1
R73	RD1-0-1251-JM000	Carbon	100Ω	1/4W	±5%	1
R74	RD1-0-2161-JH000	Carbon	1kΩ	1/6W	±5%	1
R75	RD3-3-4251-JM000	Carbon	330kΩ	1/4W	±5%	1
R76	RD3-3-4161-JH000	Carbon	330kΩ	1/6W	±5%	1
R77	RD4-7-2161-JH000	Carbon	4.7kΩ	1/6W	±5%	1
R78	RD2-7-2251-JM000	Carbon	2.7kΩ	1/4W	±5%	1
R79	RD2-7-2251-JM000	Carbon	2.7kΩ	1/4W	±5%	1
R80	RD1-0-2251-JM000	Carbon	1kΩ	1/4W	±5%	1
R81	RD2-7-1251-27000	Carbon	270Ω	1/4W	±5%	1

P.C.BOARD PARTS LIST (Continued)

Ref. No.	Part No.	Description				Q'ty
R32	RD5-6-2251-JM000	Carbon	5.6kΩ	1/4W	±5%	1
R33	RD1-0-3251-JM000	Carbon	10kΩ	1/4W	±5%	1
R34	RD1-0-2251-JM000	Carbon	1kΩ	1/4W	±5%	1
R85	RD6-8-3161-JH000	Carbon	68kΩ	1/6W	±5%	1
R86	RD6-8-3161-JH000	Carbon	68kΩ	1/6W	±5%	1
R87	RD4-7-3251-JM000	Carbon	47kΩ	1/4W	±5%	1
R88	RD4-7-3251-JM000	Carbon	47kΩ	1/4W	±5%	1
R89	RD1-0-3251-JM000	Carbon	10kΩ	1/4W	±5%	1
R90	RD1-0-4251-JM000	Carbon	100kΩ	1/4W	±5%	1
R91	RD1-0-4251-JM000	Carbon	100kΩ	1/4W	±5%	1
R92	RD1-0-4161-JH000	Carbon	100kΩ	1/6W	±5%	1
R93	RD4-7-2251-JM000	Carbon	4.7kΩ	1/4W	±5%	1
R94	RD4-7-2251-JM000	Carbon	4.7kΩ	1/4W	±5%	1
R95	RH1-0-2501-JZ000	Metal	1kΩ	1/2W	±5%	1
R97	RD1-0-4251-JM000	Carbon	100kΩ	1/4W	±5%	1
R98	RD4-7-3251-JM000	Carbon	47kΩ	1/4W	±5%	1
R99	RD3-3-4251-JM000	Carbon	330kΩ	1/4W	±5%	1
R100	RD2-2-3251-JM000	Carbon	22kΩ	1/4W	±5%	1
R101	RD2-2-3251-JM000	Carbon	22kΩ	1/4W	±5%	1
R102	RD4-7-3251-JM000	Carbon	47kΩ	1/4W	±5%	1
R103	RD4-7-3251-JM000	Carbon	47kΩ	1/4W	±5%	1
R104	RD4-7-3251-JM000	Carbon	47kΩ	1/4W	±5%	1
R105	RD4-7-3251-JM000	Carbon	47kΩ	1/4W	±5%	1
R106	RD4-7-3251-JM000	Carbon	47kΩ	1/4W	±5%	1
R107	RD4-7-3251-JM000	Carbon	47kΩ	1/4W	±5%	1
R108	RD4-7-3251-JM000	Carbon	47kΩ	1/4W	±5%	1
R109	RD4-7-3251-JM000	Carbon	47kΩ	1/4W	±5%	1
R110	RD4-7-3251-JM000	Carbon	47kΩ	1/4W	±5%	1
R111	RD4-7-3251-JM000	Carbon	47kΩ	1/4W	±5%	1
R112	RD4-7-3251-JM000	Carbon	47kΩ	1/4W	±5%	1
R113	RD4-7-3251-JM000	Carbon	47kΩ	1/4W	±5%	1
R114	RD4-7-3251-JM000	Carbon	47kΩ	1/4W	±5%	1
R115	RD4-7-3251-JM000	Carbon	47kΩ	1/4W	±5%	1
R116	RD4-7-3251-JM000	Carbon	47kΩ	1/4W	±5%	1
R117	RD4-7-3251-JM000	Carbon	47kΩ	1/4W	±5%	1
R118	RD4-7-3251-JM000	Carbon	47kΩ	1/4W	±5%	1
R119	RD4-7-3251-JM000	Carbon	47kΩ	1/4W	±5%	1
R120	RD4-7-3251-JM000	Carbon	47kΩ	1/4W	±5%	1
R121	RD4-7-3251-JM000	Carbon	47kΩ	1/4W	±5%	1
R122	RD4-7-3251-JM000	Carbon	47kΩ	1/4W	±5%	1
R124	RH2-2-1102-JZ000	Metal	220Ω	1W	±5%	1
R125	RD1-0-3161-JH000	Carbon	10kΩ	1/6W	±5%	1
R126	RD1-0-2251-JM000	Carbon	1kΩ	1/4W	±5%	1
R127	RD1-2-2251-JM000	Carbon	1.2kΩ	1/4W	±5%	1
R128	RD1-0-2251-JM000	Carbon	1kΩ	1/4W	±5%	1
R129	RD1-0-2251-JM000	Carbon	1kΩ	1/4W	±5%	1
R131	RD1-0-4161-JH000	Carbon	100kΩ	1/6W	±5%	1
R138	RD1-0-2251-JM000	Carbon	1kΩ	1/4W	±5%	1
R139	RD1-0-2251-JM000	Carbon	1kΩ	1/4W	±5%	1
R146	RD1-0-2251-JM000	Carbon	1kΩ	1/4W	±5%	1
R148	RD1-0-2251-JM000	Carbon	1kΩ	1/4W	±5%	1
R149	RD1-0-2251-JM000	Carbon	1kΩ	1/4W	±5%	1
R150	RD1-0-3251-JM000	Carbon	10kΩ	1/4W	±5%	1
R154	RF8-2-A251-KH000	Fuse	8.2Ω	1/4W	±10%	1
R155	RD1-0-3161-JH000	Carbon	10kΩ	1/6W	±5%	1
R157	RD1-0-2251-JM000	Carbon	1kΩ	1/4W	±5%	1

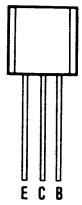
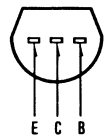
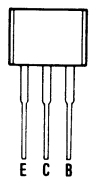
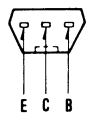
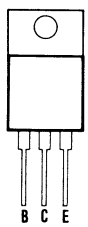
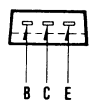
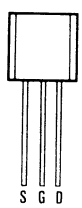
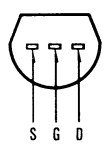
Ref. No.	Part No.	Description				Q'ty
	KEYBOARD SWITCH P.C.B. ASSY					
PCB2	141-0-1939-04700	Keyboard Switch P.C.B. Assy				1
	4-2262-18950	Keyboard Switch P.C.B.				1
	4-2312-05300	Keyboard Switch 6mm				15
	131-2-4208-42900	Spacer (L.E.D.)				1
	SEMICONDUCTORS					
D01	- -DWW - LN22-4RP- -	L.E.D., LN 224 RP (Mode)				1
D02	4-2029-72121	L.E.D., SLP 253 B (Memory)				1
	RESISTORS					
R01	RD6-8-1251-JM000	Carbon	680Ω	1/4W	±5%	1
R02	RD1-8-1251-JM000	Carbon	180Ω	1/4W	±5%	1
R04	RD1-0-1251-JM000	Carbon	100Ω	1/4W	±5%	1
	ANTENNA TERMINAL P.C.B. ASSY					
PCB3	141-0-1939-04710	Antenna Terminal P.C.B. Assy				1
	4-2262-18960	Antenna Terminal P.C.B.				1
	4-2379-71021	Antenna Terminal 4P (Antenna)				1
L01	4-2539-71610	Choke Coil 470μH				1
	RESISTOR					
R01	RD3-9-0161-JH000	Carbon	39Ω	1/6W	±5%	1
	POWER SWITCH P.C.B. ASSY					
PCB4	141-0-1939-04720	Power Switch P.C.B. Assy				1
	4-2262-18970	Power Switch P.C.B.				1
	⚠ 4-2312-03320	Push Switch 1Key (Power)				1
	111-2-6220-11100	Wire Wrap Terminal				2
	CAPACITOR					
C01	CC1-0-3500-ZG00C	Ceramic	0.01μF	50V	+80-20%	1
	TUNED/STEREO IND. P.C.B. ASSY					
PCB5	141-0-1939-04730	Tuned/Stereo Ind. P.C.B. Assy				1
	4-2262-18980	Tuned/Stereo Ind. P.C.B.				1
	131-2-4208-34400	Spacer (L.E.D.)				2
	SEMICONDUCTORS					
D01	DOO---SLP--156B-	L.E.D., SLP 156 B (Stereo)				1
D02	DOO---SLP--256B-	L.E.D., SLP 256 B (Tuned)				1

NOTES:
1. Parts order must contain Model Number, Part Number and Description.
2. Ordering quantity of screws and resistors must be multiple of 10 pcs.

PRODUCT SAFETY NOTICE

Each precaution in this manual should be followed during servicing. Components identified with the IEC symbol ⚠ in the parts list and the schematic diagram designate components in which safety can be of special significance. When replacing a component identified with ⚠, use only the replacement parts designated, or parts with the same ratings of resistance, wattage or voltage that are designated in the parts list in this manual.
Leakage-current or resistance measurements must be made to determine that exposed parts are acceptably insulated from the supply circuit before returning the product to the customer.

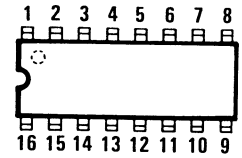
SEMICONDUCTOR LEAD IDENTIFICATION

TRANSISTOR	FRONT VIEW	BOTTOM VIEW
2SA 608 2SC 536 2SC 930 2SC 1815		
2SD 1012		
2SD 330		
2SK 246		

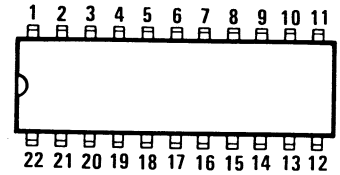
TERMINAL NAME

B→BASE	S→SOURCE
C→COLLECTOR	G→GATE
E→EMITTER	D→DRAIN

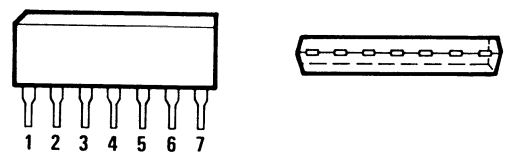
LA 1260 BOTTOM VIEW



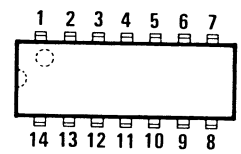
LA 3400 BOTTOM VIEW



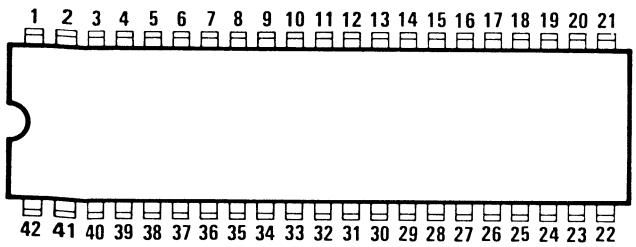
TD 6104 P FRONT/BOTTOM VIEWS



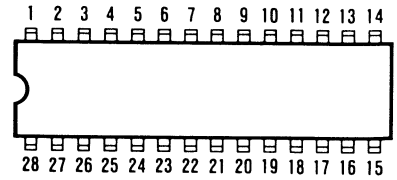
BU 4013 B BOTTOM VIEW



TC 9157 AP BOTTOM VIEW

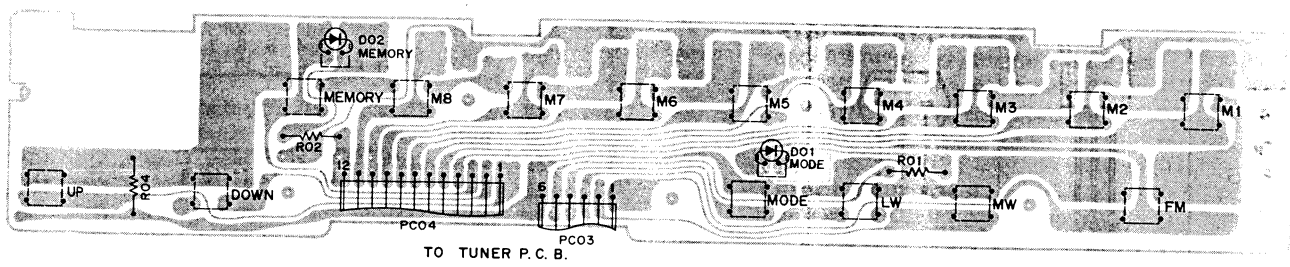


TD 6301 AP BOTTOM VIEW



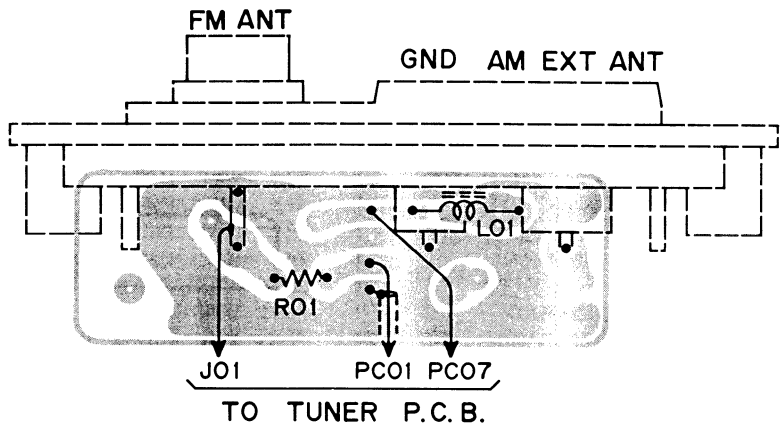
KEY BOARD SWITCH P.C.BOARD

(BOTTOM VIEW)



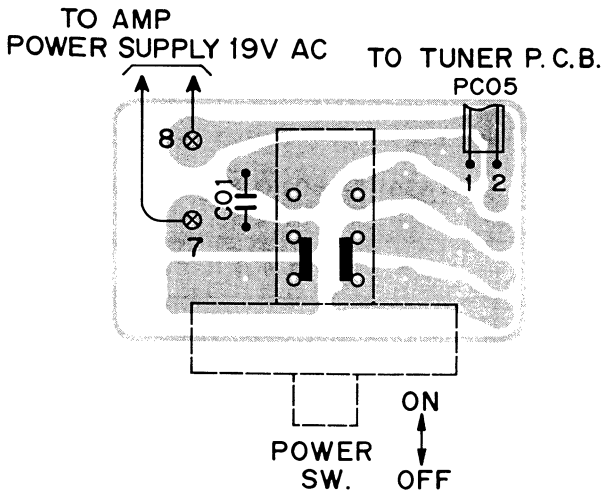
ANTENNA TERMINAL P.C.BOARD

(BOTTOM VIEW)



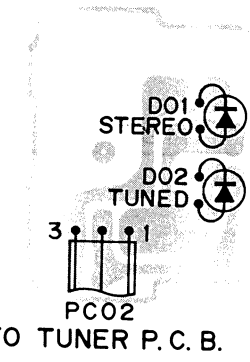
POWER SWITCH P.C.BOARD

(BOTTOM VIEW)



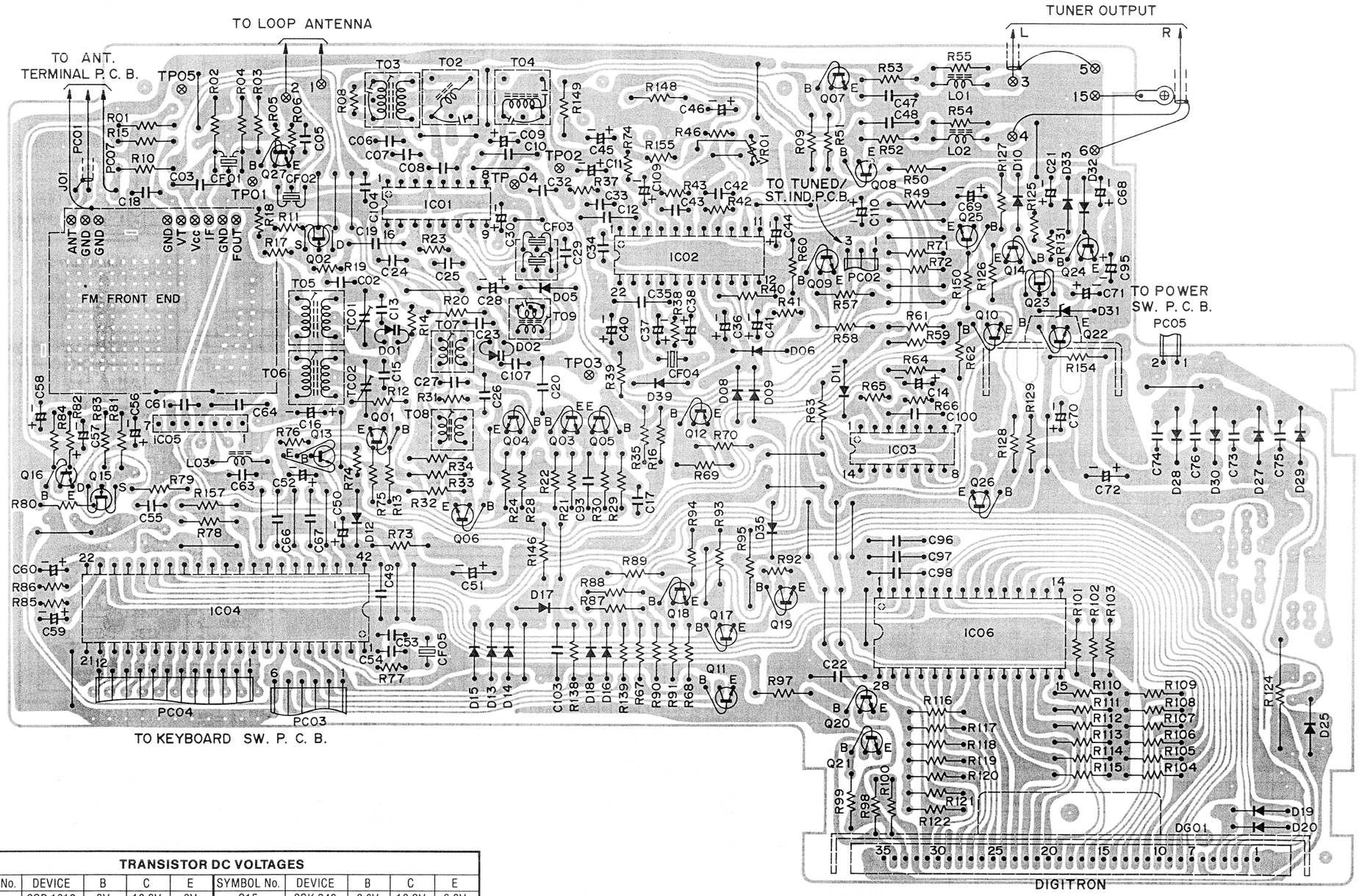
TUNED/STEREO IND. P.C.BOARD

(BOTTOM VIEW)



TUNER PRINTED CIRCUIT BOARD

(BOTTOM VIEW)



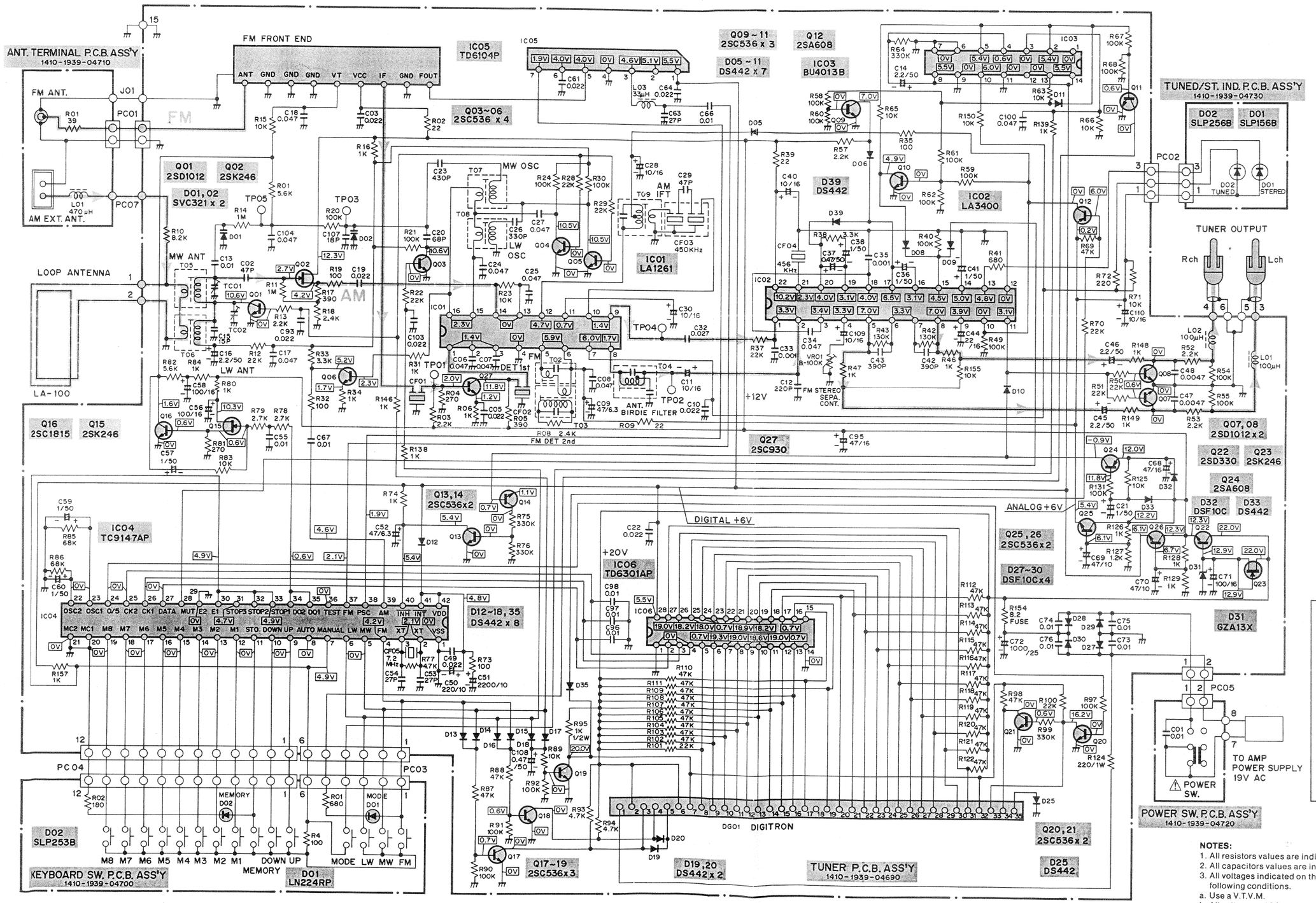
TRANSISTOR DC VOLTAGES

SYMBOL No.	DEVICE	B	C	E	SYMBOL No.	DEVICE	B	C	E
Q01	2SD 1012	0V	10.6V	0V	Q15	2SK 246	0.6V	10.3V	0.6V
Q02	2SK 246	2.7V	12.3V	4.2V	Q16	2SC 1815	0.6V	1.6V	0V
Q03	2SC 536	0V	10.5V	0V	Q17	2SC 536	0.7V	0V	0V
Q04	2SC 536	0V	10.5V	0V	Q18	2SC 536	0.6V	0V	0V
Q05	2SC 536	0V	10.5V	0V	Q19	2SC 536	0V	20.0V	0V
Q06	2SC 536	2.3V	5.2V	1.7V	Q20	2SC 536	0V	16.2V	0V
Q07,08	2SD 1012	0.6V	0V	0V	Q21	2SC 536	0.6V	0V	0V
Q09	2SC 536	0V	7.0V	0V	Q22	2SD 330	12.9V	22.0V	12.3V
Q10	2SC 536	0V	4.9V	0V	Q23	2SK 246	12.9V	22.0V	12.9V
Q11	2SC 536	0.6V	0V	0V	Q24	2SA 608	11.8V	−0.9V	12.0V
Q12	2SA 608	0.6V	0V	0.2V	Q25	2SC 536	6.1V	12.2V	5.4V
Q13	2SC 536	0V	5.4V	0V	Q26	2SC 536	6.7V	12.3V	6.1V
Q14	2SC 536	0.7V	0V	1.1V	Q27	2SC 930	2.0V	11.8V	1.2V

IC PIN NUMBERS DC VOLTAGES

SYMBOL No.	DEVICE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
IC01	LA 1260	1.4	1.4V	1.4V	0V	5.9V	5.9V	6.0V	1.7V	1.4V	1.4V	0.7V	4.7V	0V	0V	2.3V	2.3V				
IC02	LA 3400	3.3V	3.3V	3.4V	3.3V	7.0V	3.3V	3.3V	7.0V	3.9V	0V	3.1V	0V	4.8V	5.0V	4.5V	3.1V	6.5V	4.0V	3.1V	4.0V
		21	22																		
		2.3V	10.2V																		
IC03	BU 4013 B	0V	5.4V	0V	0.6V	5.4V	0V	0V	5.5V	0V	6.0V	0V	0V	0V	5.5V						
IC05	TD 6104 P	5.5V	5.1V	4.6V	0V	4.0V	4.0V	1.9V													
IC06	TD 6301AP	0V	0V	0V	0V	0.7V	19.3V	19.0V	19.0V	18.6V	18.6V	18.6V	19.0V	0.7V	0V	0.7V	0.7V	0.7V	18.2V	18.2V	18.9V
		21	22	23	24	25	26	27	28												
		0.7V	0.7V	0.7V	0.7V	18.0V	18.2V	19.0V	5.5V												

SCHEMATIC DIAGRAM



PRODUCT SAFETY NOTICE

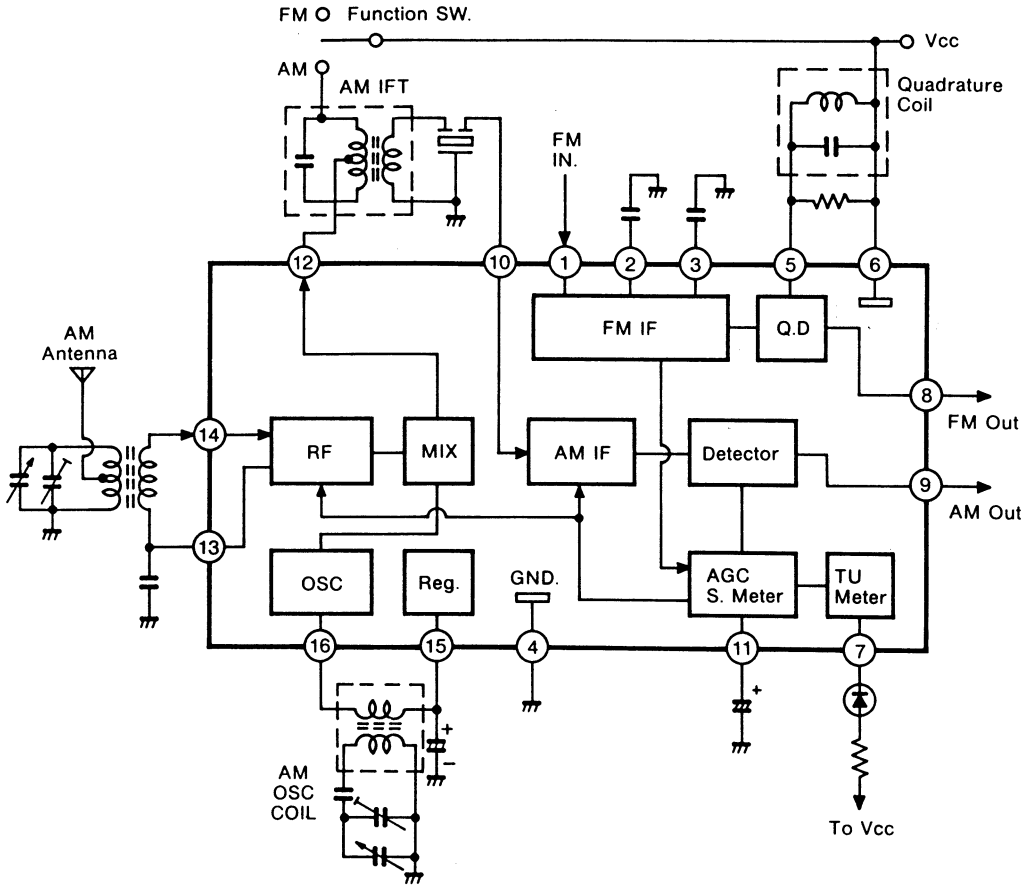
Each precaution in this manual should be followed during servicing. Components identified with the IEC symbol ⚠ in the parts list and the schematic diagram designate components in which safety can be of special significance. When replacing a component identified with ⚠, use only the replacement parts designated, or parts with the same ratings of resistance, wattage or voltage that are designated in the parts list in this manual.
Leakage-current or resistance measurements must be made to determine that exposed parts are acceptably insulated from the supply circuit before returning the product to the customer.

NOTES:

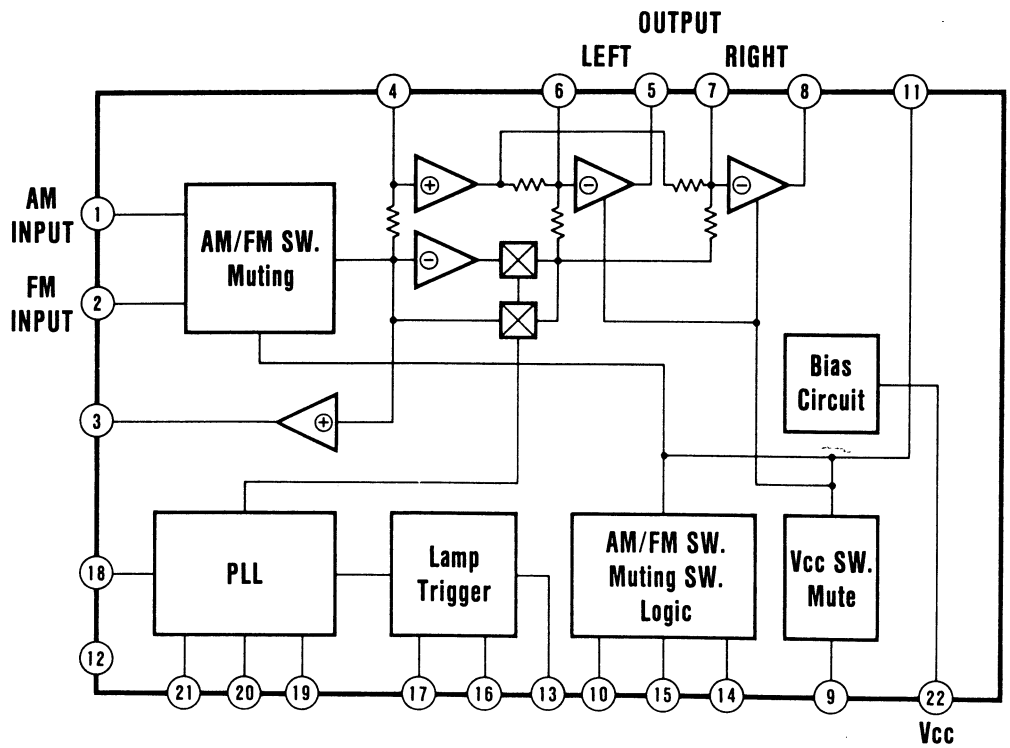
1. All resistors values are indicated in "ohm" (K=10^3, M=10^6).
2. All capacitors values are indicated in "μF" (P=10^{-12}).
3. All voltages indicated on the schematics are measured under the following conditions.
   a. Use a V.T.V.M.
   b. All voltages ±10 % with respect to chassis ground.
   c. FUNCTION SW: FM ST/MUTE Signal Stereo L.E.D. ON position.
   d. The values in IC01 show those obtained with FUNCTION SW set to "MW" position.
   e. AC input at 19 volts 50 Hz.
4. This is a basic schematic diagram.

Because Fisher products are subject to continuous improvement, Fisher Corporation reserves the right to make any changes or modifications without notice.

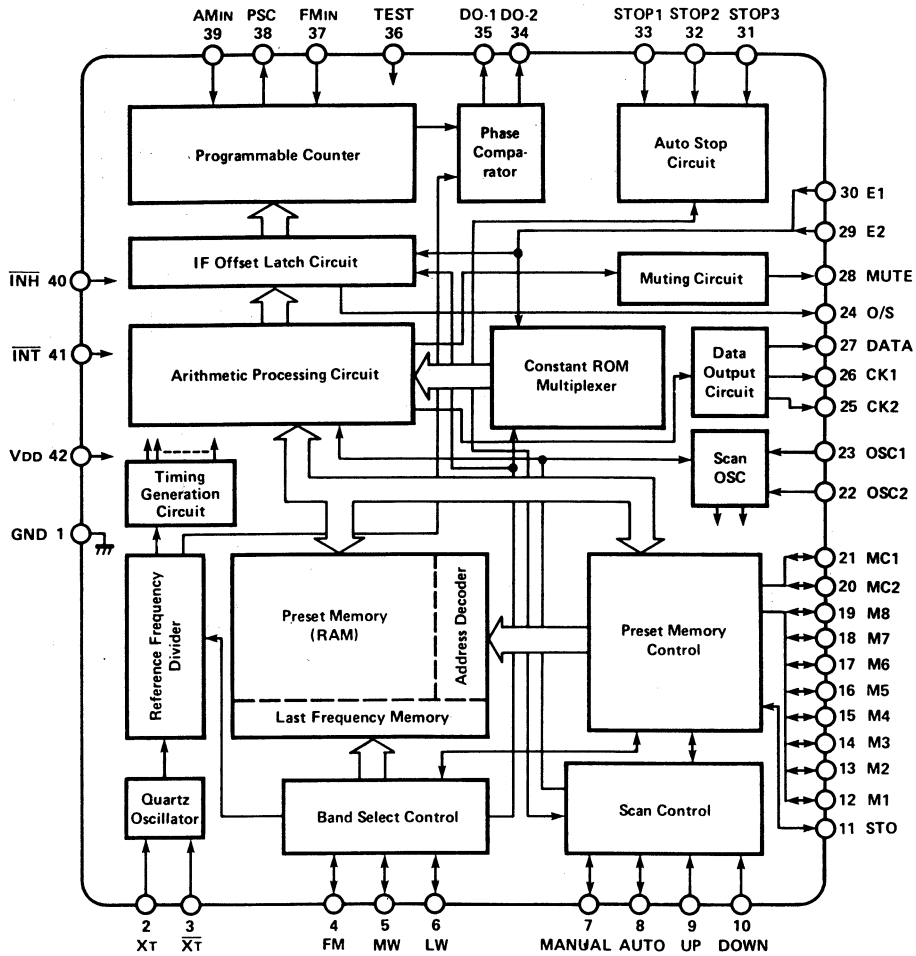
AM RF IF FM IF IC LA 1260 SIGNAL FLOW



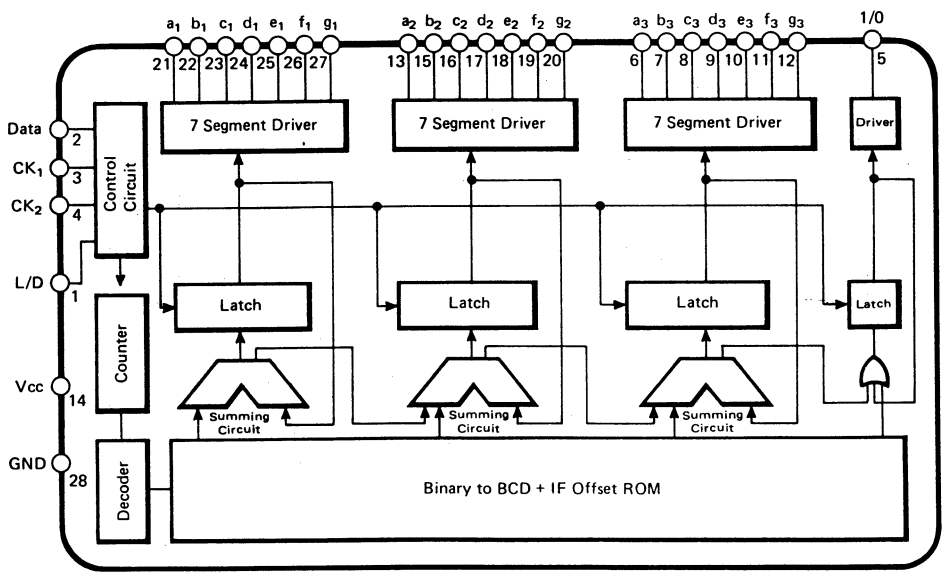
FM MPX IC LA 3400 SIGNAL FLOW



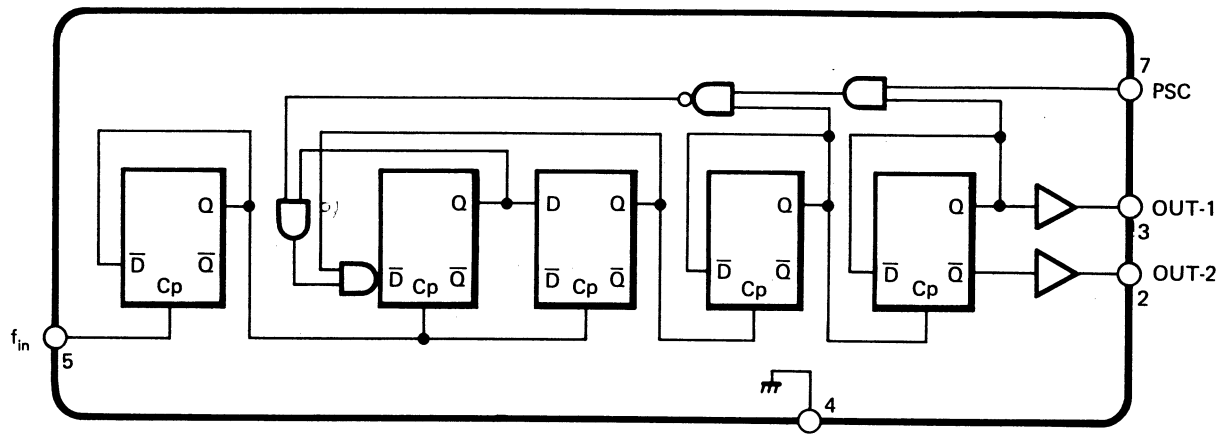
PLL CONTROL IC TC 9157 AP SIGNAL FLOW



STATIC DRIVER IC TD 6301 AP SIGNAL FLOW



FM PRESCALAR IC TD 6104 P SIGNAL FLOW



AUTO/MANUAL, ST/MUTE IC BU 4013 B SIGNAL FLOW